**CLAIMS:** 

5

- 1. Method of performing an iterative data reconstruction comprising the steps of: (a) determining projection data from estimated data for a plurality of projections; (b) determining a difference between the estimated data and measured data; (d) performing a filtering of the difference resulting in a filtered difference; and (e) performing a back-projection by updating the estimated data by using the filtered difference.
- 2. The method of claim 1, wherein the filtering is performed such that a mutual influence of the plurality of projections is at least partly filtered out.

15

- 3. The method of claim 1, wherein the method is based on the algebraic reconstruction technique (ART).
- 4. The method of claim 1, wherein at least one of steps (a), (b), (c) and (d) is performed simultaneously for at least two projections of the plurality of projections.
  - 5. The method of claim 1, wherein for determining the filtered difference, a product of a projection of a current angle and an accumulation of back-projections of preceding angles is subtracted from the difference.

25

- 6. The method of claim 1, wherein the estimated data is an estimated image and wherein the difference is a difference image.
- 7. The method of claim 1, wherein the method is applied in computed tomography.

WO 2005/036466 PCT/IB2004/051962

- 8. Image processing device, comprising: a memory for storing projection data; and an image processor for performing an iterative data reconstruction, wherein the image processor is adapted to perform the following operation: (a) determining projection data from estimated data for a plurality of projections; (b) determining a difference between the estimated data and measured data; (d) performing a filtering of the difference resulting in a filtered difference; and (e) performing a back-projecting by updating the estimated image by using the filtered difference.
- 9. Computer program for an image processing device comprising a processor, wherein the computer program comprises computer program code causing the processor to perform the following operation when the computer program is executed on the processor: performing an iterative data reconstruction comprising the steps of: (a) determining projection data from estimated data for a plurality of projections; (b) determining a difference between the estimated data and measured data; (d) performing a filtering of the difference resulting in a filtered difference; and (e) performing a back-projecting by updating the estimated image by using the filtered difference.